# EXHIBIT EE

TO DECLARATION OF S. MERRILL WEISS IN SUPPORT OF PLAINTIFF ACACIA MEDIA TECHNOLOGIES CORPORATION'S MEMORANDUM OF POINTS AND AUTHORITIES IN OPPOSITION TO ROUND 3 DEFENDANTS' MOTION FOR SUMMARY JUDGMENT OF INVALIDITY UNDER 35 U.S.C. § 112 OF THE '992, '863, AND '702 PATENTS; AND SATELLITE DEFENDANTS' MOTION FOR SUMMARY JUDGMENT OF INVALIDITY OF THE '992, '863, AND '720 PATENTS

Hovsepian v. Apple, Inc.	Doc. 325 Att. 32

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# Chronology of IBM Personal Computers

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| 1952-1982 | 1983-1986 | **1987-1991** | 1992-1995 | 1996-end |
|---|---|---|---|---|

## 1987

**January**

- IBM announces enhancements for the IBM PC Convertible, including a 256K Memory Card. [13

**April 2**

- In New York and Miami, IBM introduces the IBM Personal System/2 (PS/2) line, with IBM's firs and 3.5-inch floppy drives as standard. The Model 30 features 8 MHz 8086 processor, 640 kB RA kB 3.5-inch floppy drive, 20 MB hard drive, three expansion slots, PC-DOS 3.3, for US$1695-22 Model 50 features 10 MHz 80286 processor, 1 kB RAM, 1.44 MB 3.5-inch floppy drive, 20 MB drive, three expansion slots, PC-DOS 3.3, OS/2, for US$3595. Model 60 features 10 MHz 80286 processor, 1 kB RAM, 1.44 MB 3.5-inch floppy drive, 44 or 70 MB hard drive, seven expansion s DOS 3.3, OS/2, for US$5295-6295. Model 80 features 20 MHz 80386 processor, 2 kB RAM, 1.4 3.5-inch floppy drive, 44/70/115 MB hard drive, seven expansion slots, PC-DOS 3.3, OS/2, for U 10995. [35] [75] [116] [120] [203.27] [205.34] [330.132] [346.199] [346.269] [415.59] [620.124] [618.285] [1309] [1397.D1]
- IBM unveils its Video Graphics Array (VGA) in its Model 50 and higher of the PS/2 line. VGA o simultaneous colors at a resolution of 320x200, and 16 colors at 640x480. The colors displayed ha bits of depth for each primary color, giving a palette of 262,144 different colors to select from. [1 [346.199] [1309]
- IBM unveils its Multicolor Graphics Array (MCGA) on its PS/2 Model 30. The MCGA is limited of memory, limiting 640x480 resolution to just 2 colors, but still allowing 320x200 in 256 colors. [1309]
- IBM introduces its Micro Channel Architecture (MCA) on its Model 50 and higher of the PS/2 lir

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[346.199] [346.269] [415.59] [522.165] [1309]
- IBM and Microsoft announce *Operating System/2* (*OS/2*), Standard Edition for the IBM PS/2 com line. [16] [31] [41] [123] [130] [146] [150] [346.200] [346.269] [379.256] [389.28] [415.59] [858 [1309] [1639.109] (April 1 [909.231])
- IBM announces *Operating System/2*, Extended Edition, Version 1.1. [1309]
- IBM announces *DOS* 3.3 for PCs, for US$120. It adds support for 1.44 MB floppy disks, and mul MB hard drive partitions. [117] [146] [329.113] [346.254] [748.39] [909.231]

**April**
- IBM ships *TopView* v1.12. [130]

**June**
- IBM withdraws *TopView* from the market. [346.285] (1986 [383.14])
- Microsoft and IBM release the *OS/2* developers' kit. [493.65]

**(month unknown)**
- IBM discontinues the original IBM PC line. [203.28]

**July**
- IBM announces the IBM PC Convertible Model 3, with new back-lit LCD screen and longer batte [1311]
- IBM ships the first PS/2 Model 80 systems. [307.134]

**August 4**
- IBM introduces the PS/2 Model 25, with an 8 MHz Intel 8086, combined system unit with monitc hard drive, and reduced-size keyboard, starting at US$1350. [118] [120] [1309]

**November**
- IBM reports that it has shipped one million PS/2 systems. [327.26] [1311]

**December**
- Microsoft releases *OS/2* 1.0 for the IBM PS/2. Code-name during development was CP DOS. It re 80286 processor and 3 MB RAM. It includes a DOS-compatibility box. [346.270] [379.256] [858 [909.231] [1436.10]

**December 4**
- IBM ships first copies of *OS/2* Standard Edition 1.0. [31] [75] [130] [134] [135] [329.5] [1311] [1 (November [146])

**December 31**
- Shipments of IBM PS/2 Model 30 computers to date: 350,000. [307.219]
- Shipments of IBM PS/2 Model 50 computers to date: 308,000. [307.219]
- Shipments of IBM PC AT Model 5170 computers to date: 263,000. [307.219]
- Shipments of IBM PC XT Model 5160 computers to date: 217,000. [307.219]

**Year**
- Market share of personal computers: IBM 39.2%, Compaq Computer 22.8%. [1299.348]

## 1988

**April 8**
- IBM announces it will license its patents on the Micro Channel architecture to competitors. [1408

**June 2**
- IBM announces the PS/2 Model 70, as 16, 20, and 25 MHz 80386 systems. [131] [1309]
- IBM announces the PS/2 Model 50 Z. [1309]
- IBM announces the PS/2 Model 25 LS. [1309]

**(month unknown)**
- The bus standard used on IBM AT compatibles is given the name Industry Standard Architecture [545.355]

**July**

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- IBM ships *OS/2* Extended Edition 1.0. [31]

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**July 19**
- IBM ships *PC-DOS* 4.00. It adds a shell menu interface and support for hard disk partitions over 3 [31] [146] [1309] [1897.129] (August [1299.430])

**(month unknown)**
- Quote from IBM Chairman John Akers: "We're trying to change the habits of an awful lot of peop won't happen overnight, but it will bloody well happen." [307.214]
- Quote from Compaq Computer President and CEO Rod Canion: "If people are going to buy Micr Channel, they're going to buy it from IBM." [307.214]

**September 13**
- IBM introduces the IBM PS/2 Model 30 286, using the AT-bus. It features a 10 MHz 286, 512 kB VGA, and 20 MB hard drive. [133] [308.40] [1309] [1897.129]

**October 31**
- At the Marriott Marquis hotel in New York, IBM officially annouces the release of *Operating Sys* Standard Edition with Presentation Manager. Code-name during development was Trimaran. [16] [123] [134] [135] [313.105] [379.256] [477.160] [522.41] [620.125] [778.113] [909.231] [1299.3 [1309] [1639.114] (November [858.71])

**Year**
- Shipments of IBM pesonal computers for the year: 1.229 million. [448.69]

## 1989

**April 4**
- IBM announces a new version of the PS/2 Model 30 computer. [2164.D4]

**May 9**
- IBM introduces the IBM PS/2 Model P70 386 computer. It features MCA, 20 MHz 80386, 60 MB drive. Weight is 20 pounds. Price is US$7695. Price with 120 MB hard drive is US$8295. [1309] [2204.35] [2205.D4]
- IBM introduces the IBM PS/2 Model 55 SX computer. It features 16 MHz 80386SX processor, M slots, 30 MB hard drive, 2 MB DRAM, 1.44 MB 3.5-inch floppy drive, VGA, 13-inch color moni is US$3895. Price with 60 MB hard drive is US$4295. [1069.181] [1309] [2204.35] [2205.D4]

**June 6**
- IBM introduces the *Interleaf* desktop publishing software for DOS-based personal computers. Pri US$750-995. [2122.D6]

**June**
- IBM introduces the *Office Vision* system. It took 4000 man-years of work costing US$1 billion to [346.146] (May [618.288])

**June 20**
- IBM announces the 486/25 Power Platform processor upgrade kit for the IBM PS/2 Model 70-A2 is US$3995. [1311] [2126.A13,D1]

**July 14**
- IBM and Compaq Computer sign a patent cross-licensing agreement, covering all patents filed be

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1, 1993. [2137.35]

**July 25**

- IBM begins shipping Personal System/2 Enhanced 80386 Memory Option with 4-megabit DRAM chips. Price is US$3495. This is the first personal computer product using 4 megabit memory chip [1069.17] [2144.D4]

**September**

- IBM releases *OS/2* 1.2. It adds high performance file system (HPFS) with long filenames and exte attributes. Code-name during development was Sloop. [135] [346.243] (October [858.71])

**October**

- IBM signs a deal with NeXT to license the *NeXTSTEP* operating system, for US$10 million. [170 (1988 [618.310])

**(month unknown)**

- IBM introduces the IBM LaserPrinter laser printer. It features 10 page per minute print speed, 300 resolution, 10 founts, 512 kB RAM, and emulation of HP PCL, IBM Proprinter, IBM Proprinter X Quietwriter, IBM 7372 plotter, and HP 7475A plotter. Price is US$2595. [1064.50]

**November 13**

- At the fall COMDEX show, IBM strongly endorses *Microsoft Windows* for low end PCs, and Mic publicly endorses *OS/2* as the future platform for higher-end PCs. IBM and Microsoft agree to joi develop a consistent, full-range of systems software. [38] [45] [123] [389.29] [477.160] [1064.22] [1149.358]
- IBM and Microsoft issue a joint statement that Microsoft would hold back features for *Windows* t industry acceptance of *OS/2*. (*This letter causes the Federal Trade Commission to begin an invest of Microsoft for anticompetitive collusion.*) [1149.373]

# 1990

**March**

- IBM introduces the PS/2 Model 65SX, with a 386SX processor. [1095.32]
- IBM introduces the PS/2 Model 65, with a 16 MHz 80386SX, 2 MB RAM, and 60 MB SCSI hard [646.54]

**June**

- IBM introduces the IBM Personal System/1 computers, with 10 MHz 80286 processor, built-in V monitor. Prices range from US$999 to US$1999. [138] [1312]

**(month unknown)**

- IBM introduces the PS/2 Model 25 286. [1312]
- IBM discontinues PS/2 Models 60-041, 60-071, 80-041, and 80-071. [1095.32]

**September**

- IBM and Microsoft end co-operative work on operating systems, dividing up work-to-date betwee in a series of cross-licensing agreements. Microsoft will work on *Windows*, *DOS*, and a portable v *OS/2*. IBM will continue development of 16-bit (v1.x) and 32-bit (v2.0) versions of *OS/2*. [162] [3 [379.256] [477.161] [511.95] [795.15] [909.232] [1299.399] [1897.129] (November [38])
- IBM and Metaphor Computer Systems create the Patriot Partners company, to create an operating environment allowing a single program to run on a variety of platforms. [682.57] [1080.198] [114

**October**

- IBM releases *OS/2* 1.3. Code-name during development was Cutter. Code-name at Microsoft was [769.306] [1299.383] (December [858.71])
- IBM introduces the PS/2 Model 90 XP 486-OJ5 (8590-OJ5). It features 25 MHz 80486 processor, 80 MB hard drive, 4 MB RAM, 8 kB caching controller, 1.44 MB floppy drive, one parallel port, serial ports, mouse port, 101-key keyboard, XGA video graphics on system board, four 32-bit Mic Channel slots, Processor Complex board, two memory boards, three 3.5-inch drive bays, one 5.25

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drive bay. Price is US$12495. [769.288]
- IBM introduces the PS/2 Model 90 XP 486-OJ9 (8590-OJ9). It features 25 MHz 80486 processor, 160 MB hard drive, 4 MB RAM, 8 kB caching controller, 1.44 MB floppy drive, one parallel port serial ports, mouse port, 101-key keyboard, XGA video graphics on system board, four 32-bit Mi Channel slots, Processor Complex board, two memory boards, three 3.5-inch drive bays, one 5.25 drive bay. Price is US$13095. [769.288]
- IBM introduces the PS/2 Model 90 XP 486-OKD (8590-OKD). It features 33 MHz 80486 process ms 320 MB hard drive, 4 MB RAM, 8 kB caching controller, 1.44 MB floppy drive, one parallel serial ports, mouse port, 101-key keyboard, XGA video graphics on system board, four 32-bit Mi Channel slots, Processor Complex board, two memory boards, three 3.5-inch drive bays, one 5.25 drive bay. Price is US$16695. [769.288]
- IBM introduces the PS/2 Model 95 XP 486-OJ9 (8595-OJ9). It features 25 MHz 80486 processor, 160 MB SCSI hard drive, 4 MB RAM, 8 kB caching controller, 1.44 MB floppy drive, one parall two serial ports, eight SIMM sockets, mouse port, 101-key keyboard, XGA Display Adapter/A, ei bit Micro Channel slots, Processor Complex board, two memory boards, two 3.5-inch drive bays, 5.25-inch drive bay. Price is US$14145. [769.288]
- IBM introduces the PS/2 Model 95 XP 486-OJD (8595-OJD). It features 25 MHz 80486 processo ms 320 MB SCSI hard drive, 4 MB RAM, 8 kB caching controller, 1.44 MB floppy drive, one pa port, two serial ports, eight SIMM sockets, mouse port, 101-key keyboard, XGA Display Adapter 32-bit Micro Channel slots, Processor Complex board, two memory boards, two 3.5-inch drive ba 5.25-inch drive bay. Price is US$16095. [769.288]
- IBM introduces the PS/2 Model 95 XP 486-OKD (8595-OKD). It features 33 MHz 80486 process ms 320 MB SCSI hard drive, 4 MB RAM, 8 kB caching controller, 1.44 MB floppy drive, one pa port, two serial ports, eight SIMM sockets, mouse port, 101-key keyboard, XGA Display Adapter 32-bit Micro Channel slots, Processor Complex board, two memory boards, two 3.5-inch drive ba 5.25-inch drive bay. Price is US$17745. [769.288]

**November**
- IBM introduces the PS/2 Model P75 portable computer. It features 33 MHz 486, XGA, SCSI, 8 M 10-inch gas-plasma VGA screen, 160 MB SCSI hard drive, 1.44 MB floppy drive, mouse port. W 22 pounds. Price is US$15,990. This is the first 486 portable personal computer with FCC Class E approval. [769]

**Year**
- Market share of US personal computers: IBM 15.2%, Apple Computer 9%, Compaq 4.2%. [958.4
- Shipments of IBM personal computers: 2.84 million. [686.47]

# 1991

**(month unknown)**
- IBM introduces the IBM PS/2 L40 LX laptop computer. It features full-sized keyboard, 10-inch d hard drive. Weight is 7.7 pounds. [1312]

**July 3**
- Apple Computer and IBM sign a technology sharing agreement, to integrate the Mac into IBM's e systems, to allow future RISC-based Macs to use IBM's Power PC chip, to work together on com multimedia standards, and to co-operatively produce a new object-oriented operating system. [22] [46] [170.13] [205.13] [414.231] [525.3] [618.310] [733.23] [704.96] [881.81] [1080.198] [1149.

**October**
- Apple Computer, Motorola, and IBM officially sign an accord on technology sharing. Apple and I jointly develop the PowerOpen Specification, based on IBM's *AIX* operating system. The Taligent company will be established to develop an operating system based on Apple Computer's project P [205.99] [293.35] [321.12] [145] [397.12] [399.32] [417.17] [746.72] [1149.405] [1205.35] [188C

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(September [75] [205.2])

- At the Microprocessor Forum, IBM and Motorola outline a four year road map of PowerPC proce starting with a low-cost desktop processor, and culminating in a high performance processor for s and workstations. [1021]
- Apple Computer and IBM create Kaleida, to create a hardware-independent multimedia scripting [399.32] [414.231]
- Quote from IBM's Lee Reiswig: "We will be enhancing *OS/2* until the late 1990s." [47]
- At Fall Comdex, IBM formally introduces *OS/2* 2.0, to be shipped by early spring. [1149.408]

**(month unknown)**

- Quote by George Colony, president of Forrester Research, on *OS/2*: "This has to be the greatest di IBM's history.". [1149.409]
- IBM exits from the desktop software market. [728.45] [1080.28]

**December**

- IBM introduces the 20 MHz 386SLC microprocessor. It is an enhanced Intel 386SX, including an cache, and extra instructions. It is the first chip produced under an agreement between Intel and IE IBM to use in their own systems. [477.128] [606.64]

**Year**

- Market share of personal computers in the US: IBM 14%, Apple Computer 12%, Compaq 4%. [9
- Shipments of IBM personal computers for the year: 2.91 million. [686.47]

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End of 1987-1991. Next: 1992.

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A list of **references** to all source material is available.

Other web pages of interest:

- Chronology of Personal Computers
- Personal Computer References in Pop Culture
- Chronology of Microprocessors
- Chronology of Windows Operating Systems
- Chronology of Workstation Computers

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- Ken P's Today in History

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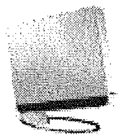

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